Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–II • EXAMINATION – SUMMER • 2014

Subject Code: 2725208 **Date: 25-06-2014**

Subject Name: Device Drivers-I

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the procedure of building custom kernel image from sources.	**07**
	(b)	List out and explain various scheduling algorithms supported by Linux kernel.	**07**
Q.2	**(a)**	What is a system call? List out few system calls used for process management in linux environment.	**07**
	(b)	Explain the steps in adding system call to kernel space.	**07**
		OR	
	(b)	Write a short note on memory management in kernel space.	**07**
Q.3	**(a)**	Explain in detail how kfifos can be used for data exchange in kernel space with suitable APIs.	**07**
	(b)	Explain the steps for registering and deregistering a char driver in kernel space with a skeleton code.	**07**
		OR	
Q.3	**(a)**	Write a short note on device special files with the listing of macros related with major, minor numbers.	**07**
	(b)	Explain printk API along with various log levels and their significance.	**07**
Q.4	**(a)**	Write a short note on scheduling jitter and interrupt latency.	**07**
	(b)	What is a semaphore? Explain semaphore operations in detail with an example from a typical RTOS.	**07**
		OR	
Q.4	**(a)**	List out and explain different types of semaphores supported in a typical RTOS.	**07**
	(b)	Write a short note on configuring FreeRTOS kernel with few examples of configuration options.	**07**
Q.5	**(a)**	What are typical characteristics of a Real Time Operating Systems?	**07**
	(b)	Differentiate between periodic and aperiodic tasks with an example.	**07**
		OR	
Q.5	**(a)**	Explain task management in detail in a typical RTOS like FreeRTOS with listing of significant API.	**07**
	(b)	What is Priority inversion problem? Explain any one solution to avoid this problem.	**07**

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